UTILITIES

INTRODUCTION

Utilities fulfill several vital human needs, such as water, sewage disposal, and electricity, for example. However, comprehensive planning for the extension of utilities is somewhat difficult because of the development and extension of utilities by private developers. Most utility companies have master plans that address expansion and capital improvements to their systems. York County's Utilities Strategic Capital Plan addresses potable water,sanitary sewer systems, and stormwater management. These master plans, which are developed and implemented by the County's Department of Environmental and Development Services and adopted by the Board of Supervisors, are reviewed and updated on a regular basis.

Utility policies can significantly affect the character of a community in a variety of ways. For example, development, particularly development at a greater intensity than previously found, frequently follows the sewer line both in timing and in physical location. In addition, utility easements sometimes form barriers to development and can divide communities, and aboveground utilities and telecommunications towers can degrade the aesthetics of a community.

There are numerous utility providers of which local government is but one. Provisions and procedures for the coordination and control of utility location and installation standards should be formulated. The County has been an active member in a regional effort to standardize the location of all underground utilities. York County has also been selected by the Virginia Department of Transportation (VDOT) as a community to test the installation of utilities in accordance with the regional standard.

Since the adoption of the Comprehensive Plan in 1991, the County has made significant progress in making public water and sanitary sewer available to County residents. During this period the County began implementation of an aggressive water and sewer extension program in accordance with the Utilities Strategic Capital Plan. As a result, sanitary sewer has been extended to the Seaford, Lackey, Dandy, Lightfoot, Greensprings, Mill Cove/Tabb Terrace, Cary's Chapel Road Queens Creek Road, Calthrop Neck, Old Lakeside/Patricks Creek and Dare areas. Public water has been extended to the Lightfoot area, Riverside Drive, Jonadab Lane, Brook Lane, Marine Circle, Whites Road, Woodland Drive, Oyster Cove Road, Old Lakeside Drive, Penniman Road, Bay Tree Beach, Springfield Terrace, and Dare.

SUMMARY OF EXISTING CONDITIONS

Regulated Utilities

The principal County concern with respect to regulated and similar types of utilities is aesthetics. Many County citizens view aboveground wires as unattractive, and underground wiring has been required since 1985 for all new development in the County.

Wireless telecommunications infrastructure has given rise to another set of aesthetic concerns with the proliferation of telecommunications towers. The development of new technologies has revolutionized the field of wireless communications, and consumer demand for these services has increased sharply as a result. The fast-paced wireless communications industry has presented local governments the challenge of guiding the siting of the industry's antennas in its communities, mainly antennas and their support structures. At times, it is difficult to find suitable locations that meet both the expectations of the wireless industry and the aesthetic goals of the community.

Support structures are typically needed for the placement of an industry's antennas to deliver wireless communications. Antennas must be at specific heights to transmit and receive radio frequencies adequately. Existing support structures (e.g., buildings, utility poles, pylons, church steeples, water towers, highway signs, lighting poles, and existing towers) can help accommodate the industry's antennas when they are located in or near a provider's service area. Basically, any structure that meets the height requirements needed by the service provider can be adapted to accommodate an antenna. The industry often uses existing

support structures when available, but when they are not available the communications provider must construct a support structure capable of supporting their antenna.

Sewer

Because soil limitations and a high water table make septic systems infeasible in most areas of the County, a sanitary sewer system is the preferred way to handle the treatment of the sewage. York County's role in public sewerage is to collect wastewater from the source and transmit it to the Hampton Roads Sanitation District (HRSD) system. HRSD is a regional authority providing wastewater treatment facilities. The HRSD's York River Treatment Plant treats all the sewerage from the lower County, Poquoson, and most of Hampton and has enough capacity to provide sewerage treatment to any new development in its service area in the foreseeable future. Sewerage from the upper County is treated at the James River Plant in James City County.

HRSD annually prepares a five-year Capital Improvements Program (CIP) containing planned construction projects and engineering studies. The CIP also includes a list of long-range projects projected for the next five to fifteen years. Projects in the CIP that are planned or proposed in York County, both short- and long-range, are listed in **Table 6** and described in greater detail in Appendix G.

HRSD CAPITAL IMPROVEMENTS PROGRAM	
SHORT-RANGE (5 Years or less)	**LONG-RANGE (5 to 15 years)**
Lightfoot Interceptor Force Main	Tabb Pressure Reducing Station
Colonial Williamsburg Pump Station Replacement	Yorktown Interceptor Force Main Parallel
York River Treatment Plant Re-Use Facilities	Kiln Creek Interceptor Force Main
York River-Gloucester Interceptor Force Main Evaluation	
York River Treatment Plant Odor Control Improvements	
Source: Hampton Roads Sanitation District Capital Improvements Program, FY 1999-FY 2003	

Table 6

York County's Utilities Strategic Capital Plan is designed to provide sanitary sewer service (and water service) to existing residential areas based on criteria established by the Board of Supervisors. The most recent plan outlines those projects that will be started by 2006. The program is self-supporting and is funded through both connection fees and meals tax revenue.

For new development, the developer is required to extend sewer service to the development and dedicate the system to the County for operation and maintenance. Sewer lines are sometimes required to be larger and deeper in order to provide for the extension of the system to accommodate not just the proposed development but also future development without the requirement of an additional pump station.

Stormwater Management

Stormwater management has evolved over the years from providing proper drainage for prevention of flooding to controlling quantity and quality of stormwater runoff to pre-development conditions. This is done through a variety of Best Management Practices (BMPs), including wet ponds, dry ponds, infiltration systems, porous pavement, and grass swales. The qualitative aspects of drainage are especially important in Chesapeake Bay Preservation and Watershed Management areas.

Stormwater management systems must fulfill the following basic objectives:

- Prevent flooding and subsequent property damage from runoff from rainfall events.
- Control post-development flow from a property to the pre-developed rate unless the site discharges to an adequate and proven system.
- Release water that is as free from sediment and normal water-borne pollutants as possible.
- Be maintainable so that they continue to function as designed.

All of these objectives should be accommodated in the *initial* design process since it is both difficult and expensive to retrofit systems that fail to accommodate one or more of the objectives.

The County completed a comprehensive Stormwater Management Plan that has been incorporated into the Utilities Strategic Capital Plan. County staff studied the various drainage basins and sub-basins under full development conditions based on projected land use. For each drainage sub-basin, the hydrology was computer-modeled and alternative solutions analyzed to develop the optimum solution in terms of cost, effectiveness, and water quality issues. The plan suggested that stormwater management systems (BMPs) serving multiple properties may be more effective for controlling the quality and quantity of stormwater runoff than individual structural BMPs for every parcel. The Board of Supervisors recently formed a Drainage Advisory Committee to further review and prioritize the stormwater projects and provide a forum for citizen involvement.

Water

The water supply system in York County is composed of several different suppliers and distributors. The largest single component of the potable water system is Newport News Waterworks (NNWW), which is operated by the City of Newport News. The City of Williamsburg and the James City Service Authority supply and distribute a small amount of potable water in the Upper County. Sydnor Hydrodynamics and Mountain Lake Water Company distribute Newport News water to certain neighborhoods via their privately owned distribution system. The County also owns and operates five wells which supply potable water to the Lightfoot and Skimino/Banbury Cross areas.

The most critical concern with respect to expanding water service is the acquisition and development of a long-term supply of raw water. York County participates with the other Peninsula localities in the regional Raw Water Study Group (RSWG) formed in September of 1988. As the region grows, so too will the water demand while the safe yield of the raw water supply is diminishing. The RWSG projects that water demand on the Peninsula will increase by approximately 60% by 2040. Meeting this demand will require both short-term and long-term strategies because of the extended lead time required to secure environmental approvals from the State and Federal governments.

York County has entered into an agreement with the City of Newport News for Newport News Waterworks to assume responsibility for **all** potable water service to the County except those areas served by Williamsburg and James City Service Authority. This agreement, however, is contingent on the Army Corps of Engineers' approval of the proposed King William Reservoir project. Because of uncertainty as to whether or not the reservoir will ultimately be approved by the Corps of Engineers, a contract has been prepared that is not contingent on the reservoir. When the contract is fully executed, which is expected to occur by the year 2006, NNWW will assume ownership and control of the County's five wells.

The Utilities Strategic Capital Plan addresses the extension of public water service to existing residential areas served by private wells or private water suppliers. As with the sewer extensions, the Board of Supervisors established criteria for prioritizing water extension projects in different areas of the areas of the County.

CITIZEN INPUT AND PLANNING POLICIES

The primary purpose of utility extension policy, according to the citizens, should be to provide public sewer and/or water service to those areas where failing septic systems and/or wells pose a serious health hazard. This goal is supported by three-fifths of the citizens, according to the Comprehensive Plan Review Survey results, and it is the only option of those listed on the survey supported by most of the respondents. This item was also ranked seventh on the list of overall County goals. Ranked second among utility extension goals is eventually to provide public utilities to 100% of the County's private land area, supported by 38% of the citizens, while 35% feel that utility extension policy should seek to manage growth by directing the timing and location of new development to approporiate areas and prevent it in other areas. Slightly over a quarter feel that a purpose should be to encourage economic development by providing public utilities to undeveloped areas designated for economic development; interestingly, although only 26% support this as a utility goal, a somewhat higher proportion, 40%, support this as an economic development goal.

The citizens feel that correcting drainage problems in the County should be a high priority; 53% of the citizens consider it a high or very high priority. With regard to regulated utilities, a 43% plurality of residents feels that County funds should not be used to replace existing aboveground utilities underground, while about a third favor the use of County funds for this purpose. A relatively large proportion (23%) have no opinion on this issue.

The citizens' ranking of potential health hazards as the most important criterion for prioritizing water and sewer projects is consistent with the water and sewer rating criteria used in the Utilities Strategic Capital Plan. The most heavily weighted criterion for water extension (3 to 5 points out of a maximum total of 14 points) rating criteria is the incidence of "sporadic or numerous septic system problems." The presence of water quality and/or quantity problems is another criterion. Similarly, the sewer rating criteria give the greatest weight (3 to 5 points out of a maximum total of 14 points) to the presence of a "shallow aquifer system susceptible to contamination from septic systems" and "evidence of septic system failures." The impact on ground or surface water is also among the sewer rating criteria, as is the potential threat of septic systems to the Chesapeake Bay or its tributaries.

Both the water and sewer rating criteria also include a growth factor (0 to 3 points), which is consistent with the goal of using utility extension policy to direct the timing and location of new development. Potential service areas are rated more highly if the existing density is high and the potential for new development is low.

With regard to the high priority placed on correcting drainage problems by the citizens, the County Stormwater Management Plan makes recommendations for on-site and regional solutions. In addition, the Drainage Advisory Committee provides a forum through which the citizens can advise the Board of Supervisors on these decisions. Implementation of drainage improvement projects, however, will vary depending on funding and timing of development.

Addressing the aesthetic impacts associated with certain regulated utilities (i.e., overhead wires) does not appear to be among the citizens' high priorities, at least not high enough to warrant the expenditure of County funds to relocate overhead utilities underground. While the locations of aboveground utilities will not increase, neither will they decrease without direct County intervention and cost sharing.

Telecommunications towers represent another type of above-ground regulated utility that raises aesthetic issues. Through its development ordinances and use permit conditions for towers, the County can and does ensure that support structures are properly sited. Each potential tower site is different, but there are certain general policies that should govern where such facilities are located. Communications facilities should not be located in or near historic areas or along tourist corridors or greenbelts. They should be located in industrial and commercial areas rather than in residential neighborhoods. Every tower should be used to the fullest extent possible; this means that wireless providers should be encouraged to share towers (i.e., co-locate) whenever possible and that existing structures should be used when available. Under unavoidable circumstances and in tandem with the Zoning Ordinance, communications towers will be allowed to encroach on these areas if facilities are designed appropriately and are compatible with the character of the protected areas. In such cases, antenna support structures should be designed to blend into the environment whenever possible. Finally, and perhaps most importantly in this era of rapid technological change, the County must ensure that support structures are removed in a timely manner when no longer in use.

A VISION FOR UTILITIES

York County should be a locality where the people have access to safe and efficient means of wastewater disposal, to water supplies that are sufficient in quality and quantity to meet household and fire suppression needs, and to other utilities that enhance the overall quality of life.

UTILITIES GOALS AND STRATEGIES

REGULATED UTILITIES

1 Eliminate overhead utilities.

1.1 Continue to require the underground installation of all utilities in new residential, commercial, and selected industrial development.

1.2 Pursue the reduction of price differentials between aboveground and underground utility placement.

1.3 Pursue enabling legislation to include the costs of replacing aboveground utilities with underground utilities in concert with VDOT road projects.

1.4 Designate priorities for the replacement of aboveground utilities with underground utilities, with a primary focus on scenic roadways and tourist areas, funded by annual appropriations through the Capital Improvements Program.

2 Minimize the amount of tree clearing required for utility installation and maintenance.

2.1 Continue to ensure that the zoning and various utilities ordinances incorporate utility placement criteria that minimize tree clearing requirements for utility installation and maintenance. Additionally, tree replacement within temporary construction easements should be required.

2.2 Continue to implement landscaping and screening standards and requirements for various utility placements and structures including transformers, meters, antennae, and other similar aboveground structures.

3 Support and regulate the development of state-of-the-art telecommunications facilities in the County that serve both the educational and business communities and provide needed connectivity without sacrificing aesthetic objectives.

3.1 Discourage or prohibit towers in historic or residential areas unless there is no other practical option. Where towers are to be located within or adjacent to such areas, they should be disguised in some manner and not pierce the ambient tree line.

3.2 Guide towers to industrial areas and other areas where towers already exist.

3.3 Require towers to be engineered to support multiple users.

3.4 Limit the height of towers so that they will not require lighting unless a tower with lighting already exists nearby.

3.5 Ensure that new antenna support structures are safe and blend into the surrounding environment when possible.

SEWER

4 Extend public sewer to areas in the County based on a priority system that includes the following criteria:

- **Impact on water wells**
- **Impact on ground or surface water**
- **Threat to the Chesapeake Bay or tributaries**
- **Growth factor**

4.1 Continue to implement the Utilities Strategic Capital Plan.

4.2 Consider alternatives to conventional gravity line sewer systems--such as vacuum systems--that can serve existing development while not promoting expanded development.

4.3 Support the upgrading of Hampton Roads Sanitation District wastewater facilities in accordance with the HRSD's adopted Development Plan and its annual Facilities Management Plan and Capital Improvements Program.

5 Prevent development from exceeding the capacity of the public sewer system.

5.1 Use all available tools and techniques to defer all or part of permitted development until such time as adequate public infrastructure is in place to support the development, and seek enabling legislation to expand the County's authority in this regard.

6 Reduce the incidence of failing septic systems.

6.1 Require all new development, except very low-density residential, to be connected to public sewer.

6.2 Continue to target public sewer extensions toward those developed areas where the soils cannot support septic systems.

6.3 Collaborate with the local Health Department to encourage alternative and new technologies for failing on-site septic systems for existing homes.

STORMWATER MANAGEMENT

7 Reduce danger to persons, property, and the environment caused by stormwater runoff from developed areas.

7.1 Continue to require storm drainage systems that effectively remove stormwater runoff from developed properties.

7.2 Continue to require underground storm water management systems and curb and gutter in new medium- and high-density residential developments and in all new commercial subdivisions.

7.3 Establish erosion control techniques for all new development to prevent any increase in runoff-borne sediment, pollutant, or toxic loading.

7.4 Encourage the development and use of regional retention/detention ponds in residential and commercial developments wherever possible.

7.5 Continue to develop and implement a County stormwater runoff control manual detailing appropriate techniques to prevent increases in sediment, pollutant, or toxic loading. Once

developed and tested, use of the manual should be required through appropriate amendments to the development ordinances.

7.6 Continue to use state-of-the-art computer stormwater modeling software to assist all developers and landowners to use designs that qualitatively and quantitatively improve stormwater runoff from the development activities in the County.

7.7 Encourage low impact development and conservation development to reduce the need for structural stormwater management.

7.8 Revise the system for prioritizing stormwater capital improvement projects to give increased weight to environmental factors.

7.9 Provide training in the proper maintenance and operation of private retention and detention ponds to civic leagues, homeowners' associations, and other owners of such ponds.

WATER

8 Extend public water to areas in the County based on a priority system that includes the following criteria:

- **Septic system problems in area**
- **Fire suppression needs**
- **Water quality or quantity problems**
- **Growth factor**

8.1 Continue to implement the Utilities Strategic Capital Plan.

8.2 Investigate and consider, to the extent authorized by the Code of Virginia, the adoption of a local ordinance requiring existing households to connect to available water systems in the event of private well failure.

9 Expand the supply of potable water in the County and the region.

9.1 Continue to participate in regional approaches to water supply and availability, with emphasis on the creation of a regional water authority or district. The County should work toward jointly developing additional surface water storage and withdrawal capacity with neighboring jurisdictions.

9.2 Plan for adequate water supply and main capacity to ensure a balance of residential, commercial, and industrial connections for both existing and planned development.

9.3 Continue to require that new and extended water lines and systems be sized to provide adequate flows for fire suppression purposes.

9.4 Use all available tools and techniques to defer all or part of permitted development until such time as adequate public infrastructure is in place to support development, and seek enabling legislation to expand the County's authority in this regard.

9.5 Continue the County's participation in the Regional Raw Water Study Group.

10 Protect the quality and quantity of groundwater and surface water.

10.1 Require all new development, except very low-density residential, to be connected to public water or to a publicly-owned central water system.

10.2 Support DEQ's mandate to prevent destruction of non-tidal wetlands understanding they are important groundwater recharge areas.

10.3 Seek grants to assist with the development and mapping of abandoned private wells and develop a program to require closure in accordance with current Health Department regulations.

10.4 Continue enforcement of the requirements of the Watershed Management and Protection Overlay District.

10.5 Continue to monitor the septic tank pump-out program and pursue criminal penalties for non-compliance.

11 Discourage excessive water use.

11.1 Seek enabling legislation from the General Assembly to allow the County to amend the building code and other development ordinances to require the application of water conservation techniques in all new development and redevelopment projects.